

ABSTRACT

The present invention provides a method for forming a gate oxide film of a semiconductor device comprising the steps of; forming a gate oxide film and a polysilicon film sequentially on a semiconductor substrate; performing a
5 nitrogen ion implantation process for the semiconductor substrate including the gate oxide film and the polysilicon film; performing a thermal treatment process to form barrier layers by combination of oxides and nitrogen at an interface between the semiconductor substrate and the gate oxide film, and at an interface between the gate oxide film and the polysilicon film; and forming
10 a nitride film on the polysilicon film.